

CLAIMS

I claim:

- 1 1. An air supply conduit for delivering a stream of air to an internal combustion
2 engine and a nitrous oxide and fuel injection assembly mounted to said air supply
3 conduit,
4 said fuel injection assembly including:
5 a support member mounted inside the air supply conduit,
6 a connector extending from said support member to the outside of the air
7 supply conduit,
8 a fastener mounted to said connector outside the air supply conduit and
9 holding said support member to said air supply conduit,
10 at least one injector nozzle extending from outside the air supply conduit
11 through said connector through said support member, and into the air supply
12 conduit,
13 said injector nozzle including a fuel orifice and a nitrous oxide orifice for
14 communication with the stream of air moving through the air supply conduit,
15 a fuel supply conduit and a nitrous oxide supply conduit in said injector nozzle in
16 communication with said fuel orifice and said nitrous oxide orifice of its injector
17 nozzle for injecting fuel and nitrous oxide into the stream of air moving through
18 the air supply conduit,
19 said nitrous oxide conduit and said nitrous oxide orifice configured to feed
20 liquid nitrous oxide to the air stream and to induce the nitrous oxide to evaporate
21 in said air stream; and

22 a control valve for controlling the flow of fuel and nitrous oxide through
23 said conduits and said injector nozzle.

1 2. The invention of claim 1, wherein said at least one injector nozzle comprises a
2 plurality of injector nozzles, and said control valve comprises individual control for
3 supplying fuel and nitrous oxide at different times to each of said injection nozzles.

1 3. The invention of claim 1, wherein said support member is arcuate and extends
2 part way about said air supply conduit.

1 4. The invention of claim 1, wherein said air supply conduit is circular in cross
2 section and said support member is an arcuate support strap that extends part way about
3 the air supply conduit.

1 5. An air supply conduit for delivering a stream of air to an internal combustion engine
2 and a nitrous oxide and fuel injection assembly mounted to said air supply conduit,
3 said air supply conduit having an external wall defining an air passageway,
4 said fuel injection assembly including:
5 a support member mounted inside the air supply conduit against said
6 external wall,
7 at least one connector extending from said support member through the
8 external wall to the outside of the air supply conduit,

9 a fastener mounted to at least one of said connectors outside the air supply
10 conduit and holding said support member against the external wall,
11 an injector nozzle extending from outside the air supply conduit through
12 each said connector and into the air supply conduit, and
13 each said injector nozzle including a fuel orifice and a nitrous oxide orifice
14 positioned inside the air supply conduit for supplying fuel and nitrous oxide to the
15 stream of air moving through the air supply conduit.

1 6. The invention of claim 5, wherein
2 said at least one injector nozzle comprises a plurality of injector nozzles, and
3 a control valve comprising individual control for supplying fuel and nitrous oxide at
4 different times to each of said injection nozzles.

1 7. The invention of claim 5, wherein
2 said air supply conduit is circular in cross section and said support member is an
3 arcuate platform that extends part way about said air supply conduit.

1 8. The invention of claim 5, wherein
2 a hole is formed in said air supply conduit, and
3 said connector conduit extends through said hole.

1 9. The invention of claim 5, wherein
2 said support member is a support platform having a bearing surface engaging the
3 external wall of said air supply conduit.

1 10. The invention of claim 5, wherein
2 said at least one connector comprises a cylindrical connector conduit extending
3 from said support member and having internal threads for receiving said nozzle and
4 external threads for receiving said fastener.

1 11. A nitrous oxide and fuel injection assembly for mounting to an air supply
2 conduit of an internal combustion engine, the air supply conduit having an external wall
3 defining an air passageway for passing air to the engine, for mixing fuel and nitrous oxide
4 with the air stream moving through the air supply conduit, said injection assembly
5 comprising:

6 a support member mounted inside the air supply conduit against said external
7 wall,

8 an injector nozzle extending from outside the air supply conduit and into the air
9 supply conduit, and mounted to said support member,

10 said injector nozzle including a fuel orifice and a nitrous oxide orifice positioned
11 inside the air supply conduit for supplying fuel and nitrous oxide to the stream of air
12 moving through the air supply conduit.

1 12. The nitrous oxide and fuel injector assembly of claim 11, and further including:

2 a connector conduit extending from said support member through the external

3 wall of said air supply conduit,

4 a fastener fastening said support member to the external wall of the air supply

5 conduit, and

6 said nozzle extending through said connector conduit.

1 13. The nitrous oxide and fuel injector assembly of claim 11, wherein

2 said support member has a bearing surface shaped to conform to the shape of the

3 facing surface of the inside of said external wall of said air supply conduit, with said

4 mounting boss and said fastener holding said bearing surface against the facing surface of

5 the inside of the external wall.

1 14. A method of adding fuel and nitrous oxide to an air stream moving from an air

2 filter toward an internal combustion engine, comprising:

3 providing a plurality of injector nozzles at the air stream,

4 injecting fuel and nitrous oxide through the injector nozzles into the air stream,

5 and increasing the volume of fuel and nitrous oxide injected through the injector nozzles

6 into the air stream with the amount of injection increasing over time.

1 15. The method of claim 14, wherein:

2 the step of providing injector nozzles at the air stream comprises providing a

3 plurality of injector nozzles about the air stream,

4 the step of increasing the volume of fuel and nitrous oxide injected through the
5 injector nozzle comprises sequentially initiating the injection of fuel and nitrous oxide
6 through the nozzles.

1 16. A method of mounting an injector nozzle on an air supply conduit extending
2 toward an internal combustion engine, comprising:
3 forming a hole in the external wall of the air supply conduit,
4 placing a support platform inside the air supply conduit,
5 extending a connector conduit protruding from the support platform from inside
6 the external wall through the hole to the outside of the external wall, and
7 mounting a nozzle through the connector conduit.

1 17. The method of claim 16, and further including:
2 attaching a fastener about said connector conduit outside the external wall of the
3 air supply conduit for holding the support platform to the external wall.

1 18. The method of claim 16, wherein
2 the step of forming a hole in the external wall of the air conduit comprises forming a
3 plurality of holes in the external wall, and
4 the step of extending a connector conduit protruding from the support platform
5 through the hole comprises extending a connector conduit from the support platform
6 through each hole.